



TETRA TECH

Christopher R. Burns
Project Manager

February 12, 2015

Mr. Brad Benning
On-Scene Coordinator
U.S. Environmental Protection Agency
Region 5, US EPA-SE-5J
77 West Jackson Blvd.
Chicago, IL 60604

Subject: Final Little City Building Ottawa Findings Report
EPA Contract No. EP-S5-13-01
Technical Direction Document No. S05-0001-1501-001
Document Tracking No. 0146

Dear Mr. Benning:

The U.S. Environmental Protection Agency (EPA) tasked Tetra Tech EM, Inc. (Tetra Tech), under Superfund Technical Assessment and Response Team (START) Contract No. EP-S5-13-01, to conduct a site visit to evaluate the structural integrity of the Little City Building located in Ottawa, Illinois and to complete a Findings Report outlining the observations made from the assessment and the review of the City's structural report completed in August 2014.

If you have any questions regarding this report, please call me at (312) 201-7719.

Sincerely,

Christopher R. Burns Jr.
Project Manager

Enclosure

cc: TDD File

**FINAL FINDINGS REPORT
FOR THE
LITTLE CITY BUILDING SITE
OTTAWA, MARION COUNTY, ILLINOIS**

Prepared for

U.S. Environmental Protection Agency Region 5
77 West Jackson Blvd.
Chicago, IL 60604-3590

Submitted by

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Prepared by:



Christopher R. Burns, Jr.
Project Manager



Christopher D. Coleman, PE
Structural Engineer (Indiana)

1.0 EXECUTIVE SUMMARY

The abandoned Little City Building, located at 112 West Madison Street in Ottawa, Illinois, requires abatement of asbestos and potentially other contaminants before the property can be sold or redeveloped for future use. Because of safety concerns raised during prebid meetings held by the City of Ottawa for asbestos abatement, the structural integrity of the property was investigated on August 28th and 29th, 2014 with the findings reported in a September 29th, 2014 letter by Fehr Graham, an engineering and environmental consulting firm. Their report (Attachment A) states that the building structure was unsafe for personnel to enter to mitigate the asbestos unless the building was properly stabilized. The City of Ottawa contacted the US Environmental Agency (EPA) who tasked Tetra Tech to provide a second opinion regarding the structural integrity of the building.

Tetra Tech made a site visit on January 28th, 2015 and visited with city officials and EPA. Based on Tetra Tech's site investigation and review of the Fehr Graham letter, Tetra Tech agrees with the Fehr Graham conclusions. Furthermore, additional damage was discovered on the exterior side of the west wall of the building during Tetra Tech's site visit giving concern that partial or complete structural failure of the building is imminent unless stabilization measures are taken immediately.

2.0 BACKGROUND

The Little City Building (Photo #1) is a five story multi-wythe brick wall and timber floor framed structure constructed in 1902 (then known as the Moloney Building), and located at 112 West Madison Street in Ottawa, Illinois. The structure was remodeled in 1947 giving it a uniquely different façade compared to the original construction (Photo #2). The building abuts existing structures to the east with a small alley to the west. A parking lot is situated to the north and the south face of the building is the original main entrance accessed from the Madison Street sidewalk. Most of the doors and windows have been shuttered with plywood and the building is currently unoccupied. Several windows have plywood that has fallen out allowing windows to be open to the environment. All of the buildings in the vicinity of the structure are occupied by businesses with the exception of the space immediately to the east which is currently vacant.

In an effort to redevelop the building, inspections were made in January, 2014 to explore the environmental risks, namely asbestos, and determine methods and costs for removal. The inspections led to concerns about the structural integrity of the building's structure. In August of 2014, Fehr Graham performed a structural inspection of the building with results documented in a letter to the City dated September 29, 2014. The letter cited numerous structural issues:

- One entire bay of floor framing (~18'x15') that abuts the west wall has collapsed from the fifth through the first floors leaving the west wall unbraced for a height of approximately 68 feet. A slight bow in the wall was observed on the exterior side at this same location.
- Adjacent bays to the collapsed bay at various levels are exhibiting signs of failure: sagging joists, split members, and framing pulling away from the exterior walls.
- Water staining is prevalent throughout and the roof membrane is severely compromised.
- The floor sheathing has deteriorated throughout.
- The stairs are heavily damaged and unsafe to use.

The letter concluded that the building structure is unsafe for asbestos removal and further indicated that the building is in jeopardy of a partial or entire collapse without stabilization methods being instituted and the roofing membrane replaced. Stabilization methods and associated estimated costs were outlined in the letter. The stabilization method entailed constructing 2' x 8' wood framed diagonally braced walls, shored from the basement to the underside of the failing and sagging bays, replacing the stairs and areas of damaged floor sheathing, and placing an exterior horizontal steel beam at each floor level of the collapsed bay. The letter provided an engineer's estimate of \$252,500.00.



Photo #1
South Face taken in the early 20th Century



Photo #2
South Face taken late 2014

3.0 FINDINGS

On January 28, 2015, a site visit was made by EPA OSC Brad Benning, Tetra Tech START, and officials from the City of Ottawa: Michael Sutfin and David Noble. Having knowledge of the unsafe building conditions presented in the findings of the Fehr Graham letter, a limited interior building entry was conducted. The first floor was accessed through the main entrance on the south face of the building. Tetra Tech only entered within the first 40 feet of the building which was enough to visually confirm some of the major findings outlined in the Fehr Graham letter: one bay of framing had collapsed from the fifth floor to the basement level (Photo #3); and water infiltration was prevalent as witnessed by the sagging plaster ceilings, mold, a sheet of ice along the exterior wall that abuts the collapsed bay, and water staining throughout. (Photo #4).

One item noticed by Tetra Tech and also mentioned by city officials in a meeting prior to the site visit was that the exterior wall that abuts the collapsed bay was damaged when presumably the bay collapsed. This was not mentioned in the Fehr Graham letter. Based on the limited visual inspection it was apparent that several wythes (layers) of brick had peeled away from the wall leaving the wall thinner than originally constructed. Furthermore, when viewed closer from the exterior side of the wall, vertical cracking was evident at this location along with loose mortar and brick debris on the ground. City officials have been visually monitoring the wall since the Fehr Graham letter and indicated during our site review that the wall cracks and debris on the ground were new and the wall looked to be in worse condition (Photos #5 and #6).

A visual walkthrough was made around the exterior of the building. The east side of the building is adjoined by additional properties – accessing the interior of the adjacent properties was not possible. A slight bow in the wall was evident on the west side. A steel fire escape ladder and a multi-story platform is attached to the exterior southwest side of the building – immediately south of the collapsed bay (Photo #7). The ladder shows slight deformation which could be attributed to either the wall bowing, corrosion of the steel, or the anchorage of the platform to the wall beginning to fail. Soft mortar was prevalent in accessible areas on the exterior of the building. Evidence of prior tuck pointing operations was noticed. Other than the cracking at the collapsed bay location, no other significant wall cracks were evident on the exterior side.



Photo #3
Collapsed bay, full height of building

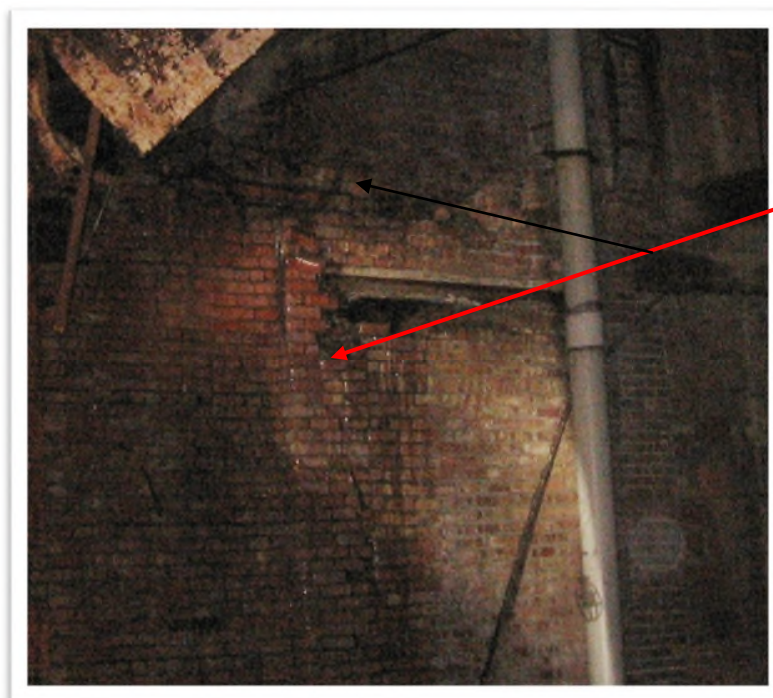


Photo #4
Missing wall bricks and ice along wall face

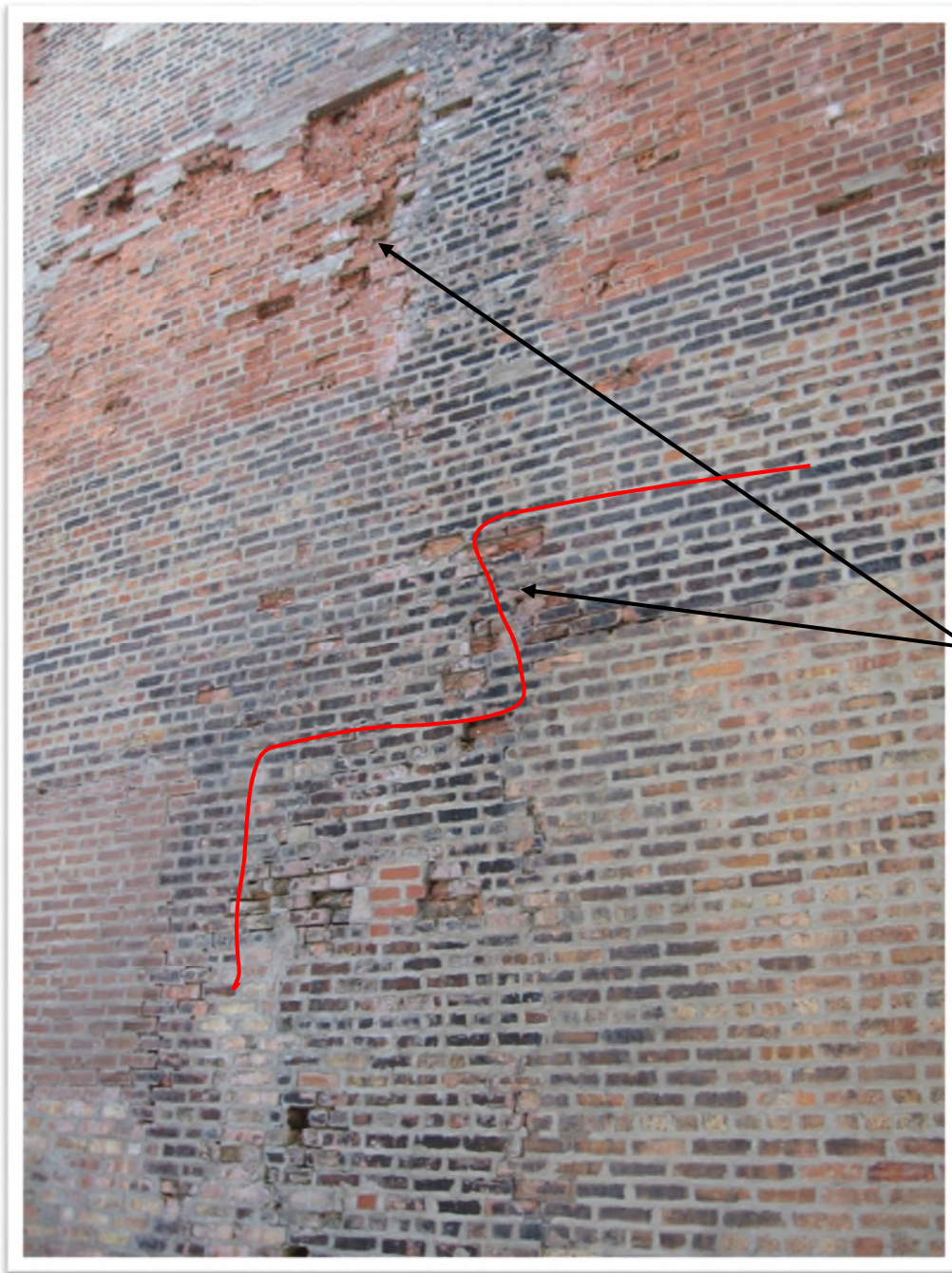


Photo #5
Missing exterior wall bricks and cracks



Photo #6
Missing exterior wall bricks and cracks



Photo #7
Exterior fire escape, lower level bowing out

3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the visual observations of the site visit, Tetra Tech agrees with the major findings in the Fehr Graham letter, namely that the building is in jeopardy of collapse unless stabilization methods are taken immediately. Fehr Graham made the site visit in late August, 2014 and no stabilization methods were observed. The City did acknowledge that stabilization contractors were pursued; however, many declined the work due to the difficulty of safely stabilizing the structure given the current condition of the building.

The damage to the existing wood framing has in all likelihood progressed since the Fehr Graham site visit conducted five months ago. Continued exposure to rain water, snow, and freezing conditions is exponentially increasing the damage to the building structure. Because the exterior walls strength is derived from lateral support of each floor level, additional floor collapses along the exterior walls could be the catalyst for a partial or full building collapse. The Fehr Graham letter noted that several wood framed members were sagging and on the verge of collapse. Appreciable snow load on the roof structure or ponding water from a heavy rain could speed the collapse of the roof which could lead to the failure of lower floors. Furthermore, lateral loads to the building attributed to wind or seismic forces could also initiate a collapse. Immediate action should be taken to prevent a collapse. Given the proximity of adjacent structures, nearby properties are also at risk of damage in the event of a collapse. If a stabilization method cannot be safely instituted by a qualified contractor, then immediate steps should be taken to demolish the building.

If the decision is made to stabilize the building structure, Tetra Tech recommends employing the use of shoring beams and post shore columns for stabilizing the individual floor levels in lieu of the 2' x 8' wood framed walls recommended in the Fehr Graham letter. The construction of wood framed walls may be disruptive and will require numerous materials to be brought into the building, adding more load to the already stressed floor system. A shoring beam can be quickly set into place with a limited construction crew and quantity of materials. For stabilizing the exterior wall, Tetra Tech recommends that diagonal post shore braces be provided on the exterior west side of the building structure in addition to the horizontal beam members recommended by the Fehr Graham letter. The braces would provide additional lateral support and help to safeguard against an outward collapse of the west wall.

Regardless of the exact method utilized for stabilizing the structure, the process needs to be a well-coordinated effort between the structural engineer and the contractor so that the safety of the construction

crew is balanced with a reliable stabilization technique. The Fehr Graham letter provided a probable cost of stabilization at \$252,000.00. Given the condition of the building, the unknown damage that has occurred over the past five months, and the limited pool of contractors that would be able to perform this work, Tetra Tech's opinion of the cost to safely stabilize the building for safe entry by an asbestos mitigation crew is in excess of \$500,000.00.

ATTACHMENT A

FEHR GRAHAM LETTER DATED SEPTEMBER 29, 2014